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ABSTRACT

The second symposium met to continue the process of building the network of scholars and the climate of cooperation and communication necessary for the further development of distance education that was begun with the first symposium, which was held in 1988. The program consisted of prepared papers and informal small-group discussions of four basic topics: learning and characteristics of learners; course design and communication; instruction and learner support; and theory, policy, and management. The first of five parts of this report presents introductory materials, including background information and summaries of the purpose, procedures, and outcomes of the meeting. The second part summarizes discussions of how research could be implemented on one question from each of the four basic topics: (1) What is the role of learner conation (striving) in distance education? (2) What are the roles and functions of learning designers in helping faculty move from traditional implementations of course design to more innovative implementations? (3) How can we classify and understand the extent and nature of interaction (student/student; student/faculty; etc.); student perceptions of interaction; interaction in teaching; and the skills required of the facilitator of interaction? and (4) What do distance education leaders do and how does institutional context influence leadership development? One participant (Peter Dirr) synthesizes the research questions generated in the final session of the symposium in the third part. In the fourth part, Melody M. Thompson presents abstracts of 34 papers prepared for the symposium, and appended materials make up the fifth part. These include a list of the participants, the program, a report on the plenary session, and the results of a poll of the 42 participants on their ranking of important research topics. (ALF)

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Report on The Second American Symposium on Research in Distance Education

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American Center for the
Study of Distance Education
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The Annenberg/CPB Project

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The
Second American Symposium
on Research in Distance Education

PART I

INTRODUCTION

Michael Grahame Moore

PART I: INTRODUCTION

Michael G. Moore

The Second American Symposium on Research in Distance Education was held at The Pennsylvania State University between Wednesday May 22nd and Friday May 24th, 1991. The initiative for convening this follow-up to the First Symposium, held three years earlier, came from Dr. Peter Dirr and Dr. Michael Strait of the Annenberg/CPB Project, which provided financial support. The organization and conduct of the program, invitations to participants, preparation of papers, and other aspects of the implementation of the Symposium were undertaken by myself, with assistance from graduate students associated with the American Center for Study of Distance Education and the staff of Penn State's Keller Conference Center. The Project Coordinator was Melody Thompson, who also wrote the annotated bibliography that is part of this report. Other assistants were Margaret Koble, Morten Paulsen, Darcie Lincoln and Susan Bousilman. The Keller Conference Center Coordinator was Kathy Karchner.

Background

The American Center for Study of Distance Education (ACSDE) is a network of academics and other persons around the country who share an interest in advancing the conceptualization, research, teaching, and practice of distance education. A major purpose of the Center's office at Penn State is to coordinate and facilitate the exchange of information, ideas, and experiences among members of this network, and, to that end, we publish *The American Journal of Distance Education*, various monographs, and the Distance Education Online Symposium (DEOS).

The practice of distance education in the United States is very fragmented. So, one might think, is the practice of conventional education but, dependent as it is on the use of sophisticated and expensive communications media (as well as unsophisticated and inexpensive media) and on systematic design and delivery of instruction and learner support, fragmentation is especially counter-productive to the goal of cost effective, high-quality teaching in distance education. Unless the use of media is on a large scale it is likely to be inefficient and, more importantly, unless the use of each medium is designed to take into account the complementary use of other media, the comparative advantage of each is not engaged, and the resulting instruction is likely to be ineffective or, certainly, less effective than it ought to be.

Prior to the establishment of *The American Journal of Distance Education* the same fragmentation that characterizes the practice of distance education was reflected in the literature regarding its research. No journal provided a whole view of the learning, course design, interaction, evaluation, and other teaching processes, the philosophy, history, organization and administration of ALL forms of teaching and learning by ALL and ANY media under circumstances where the learner and teacher are separate in space and/or time, i.e., distance education.

By 1988 a core of scholars that might be said to represent distance education research could be identified through their contributions to *The Journal*, and lines of thinking were emerging about how Americans conceptualized distance education and the areas that appeared to be of importance for research. The purpose of the First American Symposium on Research in Distance Education in 1988 was to give these scholars their first opportunity of meeting and interacting on issues of common interest, with the more specific purpose of articulating the directions that might be recommended for research in their field. Two very important outcomes of the First Symposium were the Online Symposium that permits these scholars, and other interested persons (currently several hundred in a score of countries), to maintain and develop links via electronic mail and bulletin boards, and the publication of the first graduate level text in distance education, *Contemporary Issues in American Distance Education* (Eds. Moore, Cookson, Donaldson and Quigley, published by Pergamon Press, 1990).

Purpose of The Second Symposium

The general purpose of the Second Symposium was to continue the process of building the network of scholars and the climate of cooperation and communication necessary for the further development of distance education by providing an opportunity for discussion among some of those who had been present in 1988, augmented by an equal number of persons who had identified an interest in distance education research since then. Since the First Symposium had resulted in an important set of papers, subsequently published in the Pergamon book, each person invited to the Second Symposium was asked to prepare a paper, the hope being that these papers taken together would form a publication of similar value, as well as being vital resources for discussion in the Symposium. (Participants were advised that it was not vital to produce polished, publication-standard work at this stage of the enterprise, and that opportunity would be given for rewriting if it was decided to publish the papers later.)

The Symposium's general purpose was communicated to the persons who were invited in the following terms: "The purpose of the Second Symposium is to review recent developments in research and study of distance education, to do further analysis of research needs, and to plan future research and scholarly work.

The more specific objectives of the Symposium were:

1. To have a select group of educational researchers and practitioners in distance education share their knowledge of the present and projected condition of the field of distance education and the previous and current research in the distance education field, with particular reference to developments since the First Symposium of July 1988.

2. With this review as background, to consider what research is most needed and is likely to be required in the future.

3. To discuss methodological difficulties, populations, institutional resources, funding, and other practical matters that will influence the development of the research in this field.

4. To generate a list of priority topics, together with suggestions for strategies for researching these topics, that might constitute a manifesto or agenda for research in this field for the stimulation and encouragement of students, academics, and others for the next decade.

5. By achieving the above goals, to build on the 1988 Symposium and its early success in improving the quality and quantity of research in this field.

Procedures

The central feature of the Symposium program was the informal small-group discussion of topics raised by each of the prepared papers. Groups were arranged to provide expertise on each of four broad themes in each group. These themes were:

- Learning and characteristics of learners;
- Course design and communication;
- Instruction and learner support; and
- Theory, policy, and management.

Four groups met in four discussion sessions of about ninety minutes each (see Appendix 1 for names of participants and Appendix 2 for the program). Each group's discussion was led by one or more specialists in each topic area, and was recorded by a graduate student reporter from the ACSDE. At the conclusion of each discussion session the reporter compiled a discussion summary which was used by members of the group to

present a report to a plenary session on that theme. A summary of the Plenary reports follows in Appendix 3 of this report.

Guidelines were provided for the conduct of the discussion sessions, and reporters were used as a means of liaison between the Symposium organizers and each group.

It is believed that the process of the Symposium is important, i.e., a process of sharing ideas, peer instruction, and knowledge creation. The following is an extract from the guidelines for group discussion:

> The focus of the discussion should be on "What research has been done and what needs to be done, and how?" Members of each group are invited to ask questions about the papers and to offer information and ideas with a view to meeting the Symposium's first objective, to have participants become better informed about previous and current research in the field. The second task facing each group is to answer the questions: "What research needs to be done?" in the area under discussion, and "Why are these chosen areas of special importance?" While there need be no limit on the number of research needs that are suggested, it will be imperative to the orderly conclusion of the process that the group "prioritizes" its selection. The Symposium will need to know the preferred one or two research needs in each area. As well as the report on any points of interest arising from the discussion of papers, it is the answer to these questions that should receive particular attention in preparing the report to the Plenary session.

In the Plenary sessions each group was given time to report, and these reports were followed by questions and discussion. By the last morning, the Symposium had generated a short list of key questions chosen by the discussion groups as requiring research in each theme. In the last session, participants were invited to choose from each of the four thematic areas one question that should have top priority. Discussion was included on such questions as: "What research method would be appropriate?; What collaboration among participants is feasible?; and What other resources would be required and what are available?" Our intention as organizers was to stimulate as much thinking as we could on the question, "What can be done to get this research off the ground?"

The "top four" projects identified by this process are reported in Part II: Report of Final Session.

During the course of the Symposium a parallel process was proposed by one of the participants in which all participants were invited to write their research ideas on sheets of newsprint strategically situated in the meeting rooms; the results of this polling process are reported in Appendix 4 and might be considered an informal test of validity of the primary procedure used to identify participants' opinions regarding the priority areas of needed

research. A synthesis of the topics identified at the Symposium was compiled by Dr. Peter Dirr of Annenberg/CPB Project and this is reported in Part III of this report.

Outcomes

Forty-two participants met at the Second Symposium. They came from sixteen states, with five from Canada. All were specially invited and were selected to represent the broad field of distance education. Thirty-five papers were received, bound, and distributed to participants. The program went according to plan although, as is so often the case, it would have been desirable to have had more time for discussion at the closing sessions. The last minute introduction of the Polling activity was largely responsible for the pressure on time in the final session. The feedback from participants was very positive and showed appreciation for the open-ended style of the arrangements and also for the efficient management, especially the assistance to the small groups provided by the graduate students. Part IV of this Report consists of abstracts of each of the papers, which have been prepared by Melody Thompson of ACSDE. Current plans include the publication of at least some of the papers in one or more monographs from ACSDE. The first monograph, available in January 1992 (ACSDE Research Monograph No. 4), will contain papers by Michael Beaudoin, Connie Dillon, Chére Gibson, Andrew Woudstra and Steven Wright. Since publication of additional papers will take time, readers are advised to contact the authors of any papers they are interested in, using the addresses provided in Appendix 1.

PART II

REPORT OF FINAL SESSION

PART II: REPORT OF FINAL SESSION

Goal: to select one question from each of the four topics for research and discuss how the research could be implemented. Research questions should be specific, of significance, and manageable.

From the two days of discussion and the inductive process that has been described above, the final session of the 1991 Symposium resulted in the following list of four priority research needs:

Learning and Characteristics of Learners

A general concern that more needs to be known about the internal dynamics of learning at a distance led to identification of the need for a taxonomy of learner characteristics and aptitudes, and resulted in the recommendation to encourage the pursuit of the following specific research question:

1. What is the role of learner conation (striving) in distance education?

A cross-institutional study of those personality aspects of the distant learner that have been summarized theoretically and operationally in Atman's work on learner conation represents one research approach to this question. Since models previously developed by Atman are available to establish learning profiles, research could move forward to the next step within the paradigm, delivering instruction at two different institutions.

The following individuals expressed interest in collaborating on this project and may be contacted by others who would like to be informed about the idea:

Dr. Kay Atman	University of Pittsburgh
Dr. Dan Coldeway	Athabasca University
Dr. Steve Wright	Penn State University
Susan Bousilman	Penn State University

Course Design and Communications

The discussion centered on issues concerning introducing innovation in course design, and on ways of encouraging and assisting faculty to adopt new approaches and innovative techniques. The need for changes of perspective implied by using the term "learning

designer" in place of "instructional designer" was advocated, as was the desirability of researching the role of "learning designer" with a qualitative research strategy.

The following specific research question emerged:

1. **What are the roles and functions of learning designers in helping faculty move from traditional implementations of course design to more innovative implementations?**

A case study approach was recommended to analyze a number of organizations' experiences of assisting faculty in changing their perceptions of course design and in developing new skills. A possible methodological procedure, subsequently contributed by Winston Egan, would include the following sequence of activities:

1. Structured interview and focus group studies of innovative learning designers and instructors with whom they have worked. Steps would include creating interview protocol; identifying innovative designers; identifying instructors who have been positively influenced by designers; and completing interviews or focus group studies.
2. Analysis of the data.
3. Data audit by experts.
4. Member check, i.e., review of conclusions by data contributors.

The following individuals expressed interest in collaborating on this project and may be contacted by others who would like to be informed about the idea:

Dr. Winston Egan	University of Utah
Dr. George A.B. Moore	University of Guelph, Ontario
Margaret Koble	American Center for the Study of Distance Education

Instruction and Learner Support

The focus here settled on the nature and practice of "interaction." The research question which emerged was:

1. **How can we classify and understand: the extent and nature of interaction (student/student; student/faculty; etc.); student perceptions of interaction; interaction in teaching; and the skills required of the facilitator of interaction?**

The recommendation was for a study of interaction in three parts:

1. A qualitative study of interaction as perceived by students. (Liz Burge)

2. An experimental study to compare outcomes of distance teaching with and without interaction, or with varying degrees and types of interaction. (Michael Strait)

3. A study of interactions among participants in group instruction that uses computer-mediated communication, particularly in terms of:

   a) the effect of the online environment on group interaction and communication;
   b) factors contributing to/detracting from participation in CMC;
   c) interaction between learning styles and CMC;
   d) relationships between group communication and learning; and
   e) ways in which CMC environments can be designed to facilitate positive aspects of group communication. (Charlotte Gunawardena)

Dr. Gunawardena subsequently provided the following methodological suggestions for this latter study: both quantitative and qualitative designs can be used. Although useful results may be obtained by comparing face-to-face group interaction with computer-mediated group interaction, it is best to move away from research that focuses on these kinds of comparisons to research that compares selected variables in groups that communicate entirely via CMC. Both laboratory and field studies will yield useful data if well designed. The following is a list of suggested methods for the five questions noted above in number three.

1. a) Factorial 2x2 designs manipulating variables in two CMC groups. Example: group size compared to type of learning.
   b) Comparison of face-to-face groups and CMC groups on how and how quickly groups make decisions in both environments.
   c) Measurement of density and type of interactions by analysis of computer transcripts, e-mail interview, and participant or non-participant observations.
   d) Longitudinal tracking of online communications after completion of assigned tasks.

2. Attitudinal studies using questionnaires online or off-line.

3. Using a learning style inventory such as Kolb's, compare learning styles and a selected variable in the CMC environment (ANOVA and multiple regression analyses).

4. a) Examine the amount of group interaction in accomplishing a task by tracking time and interactions in computer transcripts and compare to type of learning, using Bloom's or Gagne's model of learning.
   b) Compare how problems were solved or knowledge synthesized in different CMC environments using different software programs.
   c) Interview instructors to determine role changes and examine transcripts of computer discussions.

5. a) Compare communication models used in different environments and instructional efficiency.
   b) Use grounded theory-building to develop communication models for the CMC environment.
   c) Open discussion by participants of communication models necessary for the CMC environment online as a group discussion or by private e-mail.

The following individuals expressed interest in collaborating on these projects and may be contacted by others who would like to be informed about the idea:

Dr. Charlotte Gunawardena	University of New Mexico
Dr. Elizabeth Burge	Ontario Insitute for Studies in Education
Dr. Michael Strait	Annenberg/CPB Project

Theory, Policy, and Management

The recommended project in this category was a study of leadership. It was felt that much could be learned about both policy and management from learning about the biographies and characteristics of contemporary decision makers, both in faculty and administrative appointments, including an analysis of their techniques in policy-making and management. The specific research question for this topic was:

1. **What do distance education leaders do? How does institutional context influence leadership development?**

The following individuals expressed interest in collaborating on this project and may be contacted by others who would like to be informed about the idea:

Dr. Connie Dillon	University of Oklahoma
Dr. Steve Wright	Penn State University
Dr. Joe Donaldson	University of Missouri, Columbia
Darcie Lincoln	Penn State University

PART III

A PROPOSED RESEARCH AGENDA

Peter Dirr

PART III: A PROPOSED RESEARCH AGENDA

Peter Dirr

The following is one participant's synthesis of the research questions generated in the final session of the Symposium. Proposed as a research agenda for 1991-1996, it is hoped that this list of questions might encourage researchers and graduate students to focus their studies so that the cumulative body of research data might become larger and have more impact than the sum of its parts.

Higher Distance Education Research Agenda

A. Questions Dealing With Distance Education Students
   1. What characteristics do distance education students have that make them unique from other learners? What do we know, for instance, about:

      - Goal accomplishment style?
      - Cognitive strategies?
      - Conative style?
      - The importance of peer group learning?

   2. How do characteristics of distance education students lead those students to play a different role in their own learning?

   3. How do distance education student characteristics affect their choice of courses?

   4. How might our knowledge of distance education student characteristics be used to improve the instructional methods used in distance education courses?

B. Questions About Design of Distance Education Courses
   1. How might the instructional design of distance education courses reflect the unique characteristics of distance education students? How might the design, for instance, reflect the issues of:

      - Control of the course imposed by the course design vs. the autonomy demanded by adult learners?
      - The extent to which distance education courses are relevant to the work experiences of the students?
      - How effectively the visualization capabilities of the technologies are used?

   2. What impact do changes in instructional design of distance education courses have on the roles of the faculty who teach those courses?

   3. How does instructional design affect assessment of student learning? How might we develop new approaches to assessment that are appropriate for the goals of our courses and the characteristics of our students?

4. Are there new instructional designs that have been proven effective with distance education students? If so, how can those models be identified, described, and encouraged?

C. Questions About Delivery and Support of Distance Education Courses

1. What do we know about the need for interaction and the effects of interaction on course completion and student learning? Are different types of interaction more effective than others? Can we develop a taxonomy of types of interaction?

2. How important are affective factors in determining the effectiveness of course design, course support, and learner performance?

3. How can distance education courses be delivered in ways that maintain and sustain effective group dynamics, permit power-sharing within the courses, and encourage the development of interactive support networks?

D. Theories, Policies, and Management of Distance Education

1. Can we agree on a conceptual framework for analysis of and research on the distance learning environment? What are some of the more promising theories that might be applied today?

2. What are the job responsibilities of practitioners of distance education? What types of additional training do they wish they had? How can training programs be developed to meet those needs?

3. How can licensors and accreditors of distance education programs monitor and assess those programs to assure that they are providing quality services to learners? How is the quality of programs defined?

4. How are distance education policies developed? Who is involved? Who makes the final decisions?

5. How can the cost and benefits of distance education programs be analyzed?

6. How could distance education providers intervene to improve student retention in distance education courses and programs?

Higher Education Research Template

Students
- Characteristics
- Roles in learning
- Choice of courses
- Effective methods

Delivery and Support
- Need for interaction
- Affective factors
- Group dynamics
- Policy-making process

Course Design
- Linked to student characteristics
- Roles of faculty
- Assessment of student learning
- Models of effective designs

Theories, Policies, Management
- Conceptual framework
- Job responsibilities and training of leaders
- Licensing and accrediting oversight
- Cost-benefit analyses
- Improving retention

PART IV

ABSTRACTS OF PAPERS

Melody M. Thompson

PART IV: ABSTRACTS OF PAPERS

Melody M. Thompson

PLENARY PRESENTATIONS

Burge, E. J. 1991. Appreciation and description: Themes for germinal research.

Written in the first person to "role model the concept of ownership and to escape from the usual (and often deadly) style of anonymity" this paper examines both the "how" and the "what" of research. To discover what learners do, feel, and think, in their own terms, requires researchers to take a holistic view of the world and to focus on the relationship, intention, and consequence dimensions of experience, dimensions which operate in all facets of distance education: access to courses, materials and activities design, use of technologies, provision of learner services, and in the macro level areas of politics, research, leadership, and administration. Specifically, holistic research implies taking an integrated and wider view of both the what and how of knowing; challenging accepted images and terminology; using transformative models of teaching and learning; becoming reflective as well as active; accepting conceptual complexities; recognizing both the affective and cognitive elements in learning; and focusing on the "connectedness" aspects of education. Burge lists twelve learner-centered research questions intended both to "plumb greater depths of conceptual analysis" and to "invest the terms 'description' and 'appreciation' with different meanings," meanings which are rich and qualitative and which can inform our understanding of how people comprehend their own behavior and operate in the world. (24 references)

Coldeway, D. 1991. Research trends in distance education: An international perspective.

A recent study questioned persons involved in distance education in 80 countries to determine the extent of their involvement in research and what they believed should be the focus of current and future research in the field. In answer to questions regarding their roles in distance education, 6% of the 1160 respondents who returned the study questionnaire indicated that they were researchers exclusively and 29% indicated some level of research responsibility in their jobs. Sixty percent, however, responded that they engage in some form of research in distance education. Twenty-eight categories (27 + "other") of research interest were identified. "Traditional" topics such as learner motivation, technology, and comparisons of distance education and conventional education are popular research areas, as are those relating to educational psychology in general. Some researchers are focusing on issues unique to various aspects of distance education while other are investigating topics specific to the needs of individual institutions or researchers. Results indicate some confusion over the concepts "research," "evaluation," and "general scholarship." More in-depth analysis of data may reveal patterns of responses between researchers, practitioners, and administrators which indicate differences in perspectives regarding research and which can provide information useful in determining distance education research trends.(4 references)

LEARNING AND CHARACTERISTICS OF LEARNERS

Arundel, K. F. 1991. Distance education and ERIC.

The Educational Resources Information Center (ERIC) is a nationwide information network that solicits, indexes, and abstracts thousands of papers, conference proceedings, literature reviews, curriculum materials, and other types of publications from researchers, practitioners, educational associations and institutions, as well as federal, state, and local agencies. ERIC is accessed via telephone lines from personal computers to an on-line information service, on a CD-ROM system, or through print and microfiche indexes. Government agencies constitute about 8% of total users; the elementary/secondary education sector accounts for 33% of the user total; post-secondary education 37%; and "others" (librarians, journalists, other professionals, parents, and the general public) 22%. Currently, there are over 1400 references to distance education in ERIC, and almost 600 references to distance education research. Additionally, there are over 2500 references to "educational technology" since 1983, over 6000 since 1963. Two potential developments have implications for distance education. First, formation of an English-language family of databases involving ERIC's English, Australian, and Canadian counterparts is being considered. Second, coordination with UNESCO on the usage and meaning of descriptor terms is being discussed. If these developments proceed, they could have significance for distance education by assuring compatible indexing and abstracting of documents, resulting in more effective and efficient retrieval of international documents. (3 references)

Atman, K. 1991. Conative capacity and attention control: Implications for distance education.

Conation is described as one of the tripartite faculties of the mind: cognition, or knowing; affection, or valuing; and conation, striving. It is a condition of directed personal energy. Attention control is the ability to respond appropriately to demands in the external and internal environments without becoming overwhelmed. Both conation and attention control must be manifested by students if they are to successfully complete courses in a distance education context, which requires high levels of self-direction and goal orientation. The goal setting process is described in the Conation Cycle, a twelve-step problem solving/decision making model of concrete goal-setting behaviors. These behaviors can be measured by the Goal Orientation Index (GOI); attention control capacity can be assessed by Nideffer's Test of Attentional and Interpersonal Style (TAIS). Atman reports on a study undertaken to determine possible correlations between the twelve steps in the Conation Cycle and the six dimensions of attention control. Results from the GOI and the TAIS test taken by eighty-eight undergraduates suggest a link between conation and attention control. This connection should be studied in a distance education context in order both to identify and counsel distance education students whose weakness in these two areas of mental functioning may put them at risk for failure.

Bajtelsmit, J. 1991. Research-based approaches to dealing with student attrition: Experiences at The American College.

A summary of the "evolutionary" empirical research on student attrition at the American College is presented to focus attention on the problem and to serve as a basis for both future research and institutional interventions. Implications of student attrition include both students' loss of personal, occupational, monetary, and societal rewards and threats to institutional survival. Institutional responses at The American College have included: 1) a measurement and tracking system which provides a segmentation of the attrition problem, suggests causes, identifies intervention targets, and focuses solutions on high-payoff segments; 2) basic research to discover the causes of attrition; and 3) "applied" research

which focuses on interventions (relaxation of fixed standard; testing skills program; flexible examination procedures; quality contact; mentoring) and their outcomes.

Billings, D. 1991. Student learning style preferences and distance education: A review of literature and implications for future research.

To provide a framework for a review of literature on the interaction of learning style, delivery system, and outcomes, four categories of learning style elements are presented and discussed. Sociological variables refer to a preference for having others present in the learning environment and also preferences for pacing and structure. Physical variables pertain to modes of information reception through visual, auditory, or kinesthetic channels. Environmental variables such as light, sound, and heat influence the study environment. Finally, psychological or affective variables include such hard-to-define characteristics as motivation, responsibility, and persistence, which are believed to affect the outcomes of distance education courses. In empirical studies (11) reviewed by the author, sociological variables appeared to significantly influence course outcomes. Physical, environmental, and psychological variables apparently had little effect on learning outcomes. Suggestions for further research include further investigation of the significance of sociological variables; investigation of the relationships between learning styles and instructional delivery systems; determination of the extent to which students' knowledge of their style preferences influences outcomes; investigation of the relationships between design of instruction and use of learning style preferences; and continuation of the attempt to define and understand persistence as a learning style variable. (27 references)

Ehrman, M. 1991. Learning styles and distance education: A personal example.

Specific learning style variables and their relation to distance learning have been discussed in the distance education literature. Here Ehrman describes her experience as a distance learner in an external Ph.D. program in relation to several individual difference variables. The Myers-Briggs Type Indicator dimensions of introversion-extraversion, sensing-intuition, thinking-feeling, and judging-perceiving are applied to her learning experiences and activities in the course of her degree program. Global vs. analytic processing, field dependence–field independence, meta-cognitive learning strategies, preferred time of day, and motivation are also addressed. The importance of accessing strategies associated with less-preferred styles, as well as making maximum use of one's strengths, is emphasized. (15 references)

Gibson, C. 1991. Recent research on learning and characteristics of learners in distance education.

Distance education research in the past few years has evolved from a focus on distance learners as individuals with fixed, unchanging characteristics to a concern for the changeable nature of learner characteristics. Dynamic affective variables are beginning to replace static demographic variables as predictors of student achievement, satisfaction, and persistence. Increased attention also is being given to the influence of change in learners' environments or circumstances (work environment, study circumstances, etc.) on persistence. Gibson argues that multivariate, multifactorial research designs are necessary to adequately study the dynamic, complex distance learner in his or her learning environment. Additionally, qualitative data should be collected to aid in interpreting findings and generating theory. She suggests that questions which serve as a focus for research should emphasize "head learning" rather than "head counting," and psychological access to knowledge rather than physical access to content. Asking the right questions is a necessary first step to advancing learning at a distance. (20 references)

Kerlin, J. 1991. Some thoughts on academic computing, the adult learner and distance education.

Computer Aided Instruction (CAI) is emerging as an important influence in the field of distance education. Questions focusing on resources and institutional commitment, faculty acceptance, standards, development and dissemination, and a reward structure need to be addressed. Learner-centered concerns such as involvement and satisfaction should also be investigated. Kerlin argues that, while the above issues are of concern to distance educators in all contexts, distance educators of adults may need to ask these and other questions with the specific needs of adult learners in mind. If distance education is to become committed to supporting the education of adults, the training needs of teachers providing distant adult students with CAI will need to be investigated, a national strategy should be developed, and consistency should be promoted. (9 references)

Wells, R. 1991. Review of recent research on learners and learner support in distance education delivered by computer-mediated communications.

Computer mediated communication (CMC) allows establishment of an electronic classroom accessible to students separated from the instructor and each other by time and physical distance. Several learner and learner support issues need to be investigated from perspectives which relate specifically to this type of classroom. Student completion should be examined in terms of motivation, social and demographic factors, and multivariate analysis. Institutions conducting research in this area should share their results with others to identify trends and effective interventions. The needs of graduate students studying at a distance via CMC should be examined to determine whether these students need more of the same types of services needed by traditional students or whether they have unique needs. Research is needed to determine any distinguishing characteristics between students who enroll in a non-CMC rather than a CMC section of a course. Institutions need to determine whether the face-to-face meetings required by some CMC courses produce benefits which justify the demands imposed on the students and the institution. Additionally, they need both information about student access to computers and policy development to ensure such access. Finally, the pedagogical and research potential for the "complete, detailed, and evolutionary account of the experiences of distance students" contained in the CMC transcript needs to be explored. (20 references)

COURSE DESIGN AND COMMUNICATION

Dwyer, F. 1991. A paradigm for generating curriculum design oriented research questions in distance education.

To successfully progress through different levels of learning (facts, concepts, rules/principles, problem solving) learners need to participate in different levels of information processing. Success at each level requires that conditions both within the learner and the external environment be conducive to the specific type of learning. Instructional consistency/congruency paradigms provide a basic conceptualization of how individual differences may be provided for in the design and development of distance education instructional materials by matching instructional design of the content with the information processing level of the learners. By manipulating the instructional environment, the designer of learning experiences can encourage learners to act on information in ways that will enable them to process information at levels appropriate for the achievement of different types of educational objectives. Research based on item analysis centered around the instructional consistency/congruency paradigm would allow designers to examine content, determine learners' expected level of learning, and select the

most appropriate instructional design strategy. It could also provide a means for identifying specific areas of leaning difficulty and provide the rationale for effectively positioning interactive-feedback experiences. Systematic evaluation of feedback strategies would facilitate development of a decision matrix for the design of instructional content which progresses from the factual through the problem solving stage and would prescribe for designers feedback experiences appropriate for learners at each level of content competency. (20 references)

Egan, W.; J. Sebastian; M. Welch; and B. Page. 1991. Identifying performance improvement prescriptions for distance learning and teaching: Quantitative and qualitative approaches.

Distance education researchers are attempting to isolate the particular instructional, technological, and communication factors that contribute significantly to positive outcomes for distance learners and educators. Researchers and educators in the University of Utah's Department of Special Education have used a variety of quantitative and qualitative approaches to first investigate, then improve, student performance and satisfaction. Quantitative studies based on course evaluations and objective tests in both on- and off-campus classes identified areas in course design which needed improvement; subsequent course adjustments resulted in a substantial improvement in the perceptions of both distance and on-campus learners. However, quantitative investigative techniques, while useful in identifying areas of concern, did not result in the type of information necessary for prescribing appropriate solutions. Focus group studies with experienced distance learners provided results specific enough to be useful in identifying and implementing necessary changes in course design. These group discussions, centered around the question of "What makes a difference in televised instruction?," provided information about the criteria distance learners used in rating course and media evaluation items. Focus group proceedings were video taped, transcribed, and subjected to standardized analysis procedures. The information gathered in this manner is precise enough to suggest specific, appropriate course improvement prescriptions to address problems identified in the earlier quantitative studies. (12 references)

Goldstein, J. 1991. Research needs in distance learning: A practitioner's perspective.

While technology has the potential to solve some of the problems facing American education, a mistaken belief that increased use of technology is a panacea may result from the current lack of information and guidance necessary to make intelligent decisions regarding planning, use, and evaluation of educational technologies. Not only must investigators provide a foundation of research to help guide effective utilization of existing and emerging technologies, but they must ensure that the results of that research are widely disseminated. Areas which must be addressed by researchers and acted upon by practitioners include: training learners and teachers in effective use of technologies; interactivity in distance learning; appropriate application of technological instruction to different learner populations; equitable distribution of resources; regulation of non-traditional instruction; and stimulation of research and dissemination of results. The rapidly evolving nature of the field of distance education is tending to widen the gap between theory and practice. To narrow the gap, to ensure that research is accessible and presented in practical terms that address real situations, there must be synergy between scholars and practitioners.

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McIsaac, M. 1991. Toward an analysis of social issues and course design.

Examination of distance education literature reveals several major course design concerns: providing the learner with adequate feedback, effectiveness of instructional design, selection of appropriate media based on instructional needs, basic evaluation, and programmatic research. Although attention has been given to these elements of course design, little attention has been paid to the underlying social and cultural assumptions which influence design of instruction. Nowhere is it more important to examine these assumptions than in distance education. Educational technologies are not neutral carriers of information; rather, they produce images which serve the interest of particular social and historical interpretations. Courses produced in North America, for example are based on a set of cultural assumptions which view Western technology and science as the most advanced stage in cultural evolution, a perspective which is not universally accepted. Additionally, adoption of the Western view of modernization may occur at the cost of non-Western countries' own indigenous traditions. Moral and ethical considerations therefore necessitate viewing critical inquiry in educational technology as a priority as important as qualitative and quantitative inquiry. Knowledge of the social context in which courses will be taught as well as elimination of "tacit messages and hidden agendas" will allow educational technology to be used to meet local social, educational, and political objectives, or to improve global dialogue by incorporating culturally diverse traditions into the Western model. (11 references)

Moore, G. A. B. 1991. Course design and communication technology in distance education.

Technical media are employed in distance education to bridge the separation of learner and teacher. Examination of the various media in terms of potential for interactivity (two-way communication) reveals an apparent bias in favor of certain technologies, such as audioconferencing, interactive video disc, electronic mail, computer conferencing, and database access. However, it is not the intrinsic characteristics of a particular medium which encourage or retard interactivity, but rather the instructional designer's ideological and conceptual limitations which are expressed in the instructional design. To overcome this limitation, Moore proposes a model for the integration of computer mediated communication (CMC) into the design and delivery of distance education courses. The model, in which the vertical axis represents increasing cognitive complexity and the horizontal axis overlays levels of intellectual activity with forms of instruction, suggests a direct relationship between the complexity of an educational task and the form of instruction. In a pilot study, the model served as a useful construct for course design by integrating the communication technologies of computer-based instruction and computer conferencing to serve the needs of students for first (knowledge and comprehension) and second (analysis and synthesis) form learning. (20 references)

Phelps, R. 1991. Review, critique and future directions: Research on course design and communication in distance education.

Recent research on course design and communication in distance education suggests that the most important factor in these two areas is knowledge and understanding of the environmental and motivational factors that influence students. Awareness of these factors must be programmed into the design of distance education courses. Knowledge of the multiple roles played by most distance education students, for example, should influence the way in which course material is packaged, lessons are apportioned, and feedback is given. Understanding of the isolated, unmonitored environment in which most distance education students work necessitates inclusion of time management, independent study skills, and pacing aids in course materials as well as provision for the depth of processing

assumed to occur in face-to-face classrooms during seminars, discussions, and group work. Course designers' ability to apply the above principles to a given course will depend on research which can generate more widely applicable guidelines. What is needed is a distance education theory or model that takes into account student, instructor, environmental, and institutional goals and constraints. While the metaphor of the classroom has been useful (and, certainly, familiarly comfortable) in generating models for conducting distance classes, this familiar metaphor may have limited our thinking and, thus, the extent to which the potential of new technologies has been realized. A necessary first step in theory or model building is for researchers to expand their knowledge and experience with educational technologies and with the strategies for combining them to meet educational and training objectives. (3 references)

Santoro, G. 1991. Computer empowerment and the ten thousand things.

Students using computer mediated communication (CMC) seldom develop an understanding of how the computer system works or of its potential as an educational tool. Design approaches such as menus or the use of terms initially created to make learning easy allow students to perform routine computer tasks by the use of easy, "magical" commands; however, lack of understanding of the basic or underlying process involved prevents them from developing innovative ways to use the computer to solve their information problems. The issue then becomes: How do educators and system designers provide faculty and students with computer systems that both facilitate easy learning and empower them to go beyond specific tasks to general conceptualization? Academic computing support can exploit available technology for the enhancement of the teaching/learning experience. The goal is to "empower" users by providing both generally applicable and content-specific CMC "tools," both basic systems fundamentals and application fundamentals, which become so familiar to student or faculty computer users that they are no longer an impediment but rather an addition to users' cognitive repertoires. The development of these empowering approaches depend on institutional strategies which encourage faculty to effectively incorporate computers in instruction; adoption of standardized terminology; encouragement of an outward perspective among technical support personnel; encouragement of studies on the effectiveness of various design and training approaches; and encouragement of a perspective that views the computer as a tool for lifelong learning.

INSTRUCTION AND LEARNER SUPPORT

Beaudoin, M. 1991. Researching the research: A critique of distance education literature.

To date, most claims of effectiveness or prescriptions for good practice have been based on anecdotal data. The effect of this lack of research on key distance education issues is a perpetuation in the minds of conventional educators of skepticism, myths, and doubts about the credibility of out-of-classroom education. Systematic, evaluative distance education research data is needed to document and demonstrate practice outcomes. Advancing distance education as a field demands changing policies to meet changing needs; such change necessitates a research base which combines both persuasive evidence of distance education successes with analysis and understanding of program failures. Numerous fundamental questions which have yet to be adequately investigated include: assessing the need for and providing a framework for interaction; the potential for development of affective skills; assessment of resources and determination of learner needs; distance education as a means of social control or as a vehicle for liberation; and equality of educational access. Additional systematic research is necessary to address both theoretical

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and practical issues in distance education. Only in this way can distance educators make others more aware and accepting of the philosophy, methods, and effectiveness of distance teaching and learning. (7 references)

Davis, S. 1991. CMC to support telecourse students--Can it really work?

Computer mediated communication can be an effective support medium for interaction in live video courses. Distance education literature suggests that while video telecourses can provide motivation, skills, and communication, it is less successful in promoting cognative achievement, problem solving, and a sense of community; CMC potentially can provide these missing elements. Crucial to the provision of these elements is the quality of the moderator and the education of students in the proper protocol for conferencing. Models to facilitate practical applications of CMC theory need to be developed and questions relating to the nature, enhancement, and evaluation of interaction need to be addressed before we can determine the value of CMC as a complement to live television instruction.
(20 references)

Dillon, C. and D. Blanchard. 1991. Education for each: Learner driven distance education.

In a search of the literature on learner support in distance education four levels of categories emerged, each of which served as a point of further analysis. One hundred and seven articles were analyzed in terms of: research methodology, institutional context, type of learner support, and learner characteristics. The mixed nature of reported research findings suggests that the type of necessary support varies according to interrelationships among the needs of the learner, the requirements of the content, the institutional context, and the selected technology. A model is presented which integrates these factors and provides the basis for practice prescriptions. Recommendations for further research include development of methods to identify students who need support; a focus on social, cultural, economic, and psychological factors contributing to student success; examination of the nature of student interactions; study of the cooperative arrangements among organizations; and the effect of faculty development on student outcomes and attitude.The different perspectives provided by quantitative and qualitative research methods are necessary to provide information for generalizing and theory building. (17 references)

Feasley, C. 1991. Does evaluation = research lite?

Research and evaluation are important tools for discovering effective methods of providing the interactions necessary for effective instruction and learner support. However, distance education literature often confuses the terms research and evaluation, making it difficult to identify generalizable results. Other "underappreciated" sources are available, however: case studies and "fugitive reports" issued by individuals or research centers. Examples include reports issued by FernUniversität on the instruction and learner support practices of 203 distance education programs worldwide; an edited anthology of papers (Schuemer 1991) which presents information about evaluation philosophies and practices of fourteen university-level distance education programs in thirteen countries; and a National Home Study Council report summarizing instructional components, student services, motivational methods, non-start and completion rates, types of examination questions, faculty characteristics, and student demographics for fifty-seven member institutions. Such reports can be useful in identifying externally valid variables; however, they must be examined for internal validity and reliability, as well. (24 references)

Gunawardena, C. 1991. Collaborative learning and group dynamics in computer mediated communication networks.

Learner-learner interaction and group work have been shown to increase motivation, completion rates, student satisfaction, and, in some situations, performance. Computer mediated communication, because of its conferencing feature and time- and place-independent nature, can provide opportunities for interaction of a more collaborative, group-oriented nature than do other two-way, interactive educational technologies. To fully realize the potential benefits, a variety of factors relating to collaborative learning via computer conferencing must be investigated and then addressed in practice. Issues of importance include: the interaction of group dynamics and collaborative learning; the appropriateness of computer conferencing for forming the webs of communication necessary for learners to synthesize ideas and "build knowledge;" facilitation of equitable participation, social equality and social cohesion of participants; minimization of communication anxiety; and the importance of a strong moderator willing not only to facilitate but to participate as a fellow-learner. (16 references)

Ritchie, H. 1991. Interactive, televised instruction: What is its potential for interaction?

Objectives of instructional interaction in televised higher education courses include more positive attitudes toward instruction, increased comprehension, imitation of traditional face-to-face learning conditions, and promotion of faculty acceptance of distance education. The effectiveness of televised instruction for reaching these goals is not well documented, however. Evidence indicates differences between the types and levels of interaction in face-to-face and televised courses. Televised interaction is characterized by a loss of "band width" in comparison to face-to-face communication. Additionally, electronically mediated interactions are shorter, less friendly, less emotional and less personal. Student interaction constitutes only about five percent of instructional time in face-to-face courses, even less in electronically mediated instruction. To justify the hardware, personnel, and planning necessary to provide supposedly "interactive" televised instruction, distance educators need to develop techniques other than those used in traditional instruction to realize the potential for interaction in this medium. (12 references)

Wright, S. 1991. Review and critique of recent research on instruction and learner support in distance education with suggestions for needed research.

A review of recent research on learner support reveals that "a preponderance of the best studies" have been conducted in institutions outside of the United States. U.S. distance education programs can benefit from application of research findings and replication of research models developed by international distance educators. This research has focused on three aspects of learner support: pre-enrollment activities, tutorial services, and counseling and advising services. Pre-enrollment support activities include self-assessment, information dissemination, orientation, and advice on study techniques. Increasingly, this early stage of interaction is receiving more sophisticated and comprehensive attention by distance education institutions. Tutorial services can be an important factor in reducing student attrition. Such services in some cases are provided through face-to-face contact; in other cases, interaction is via print; telephone; video-, audio-, or computer conferencing; or radio. Tutorial interactions which have been shown to increase completion rates and student satisfaction are academic content assistance, personal encouragement, and individualized pacing. Although counseling has been identified as an essential element in promoting student success and course completion, counseling and advising in distance education are generally characterized by "exciting opportunities and depressing realities" due partly to a significant gap between institutional rhetoric and actual

practice. Confusion over the distinctions between counseling and advising adds to the problem. Most interactions, generally providing content support and information dissemination, occur via telephone, although more advanced technologies are increasingly being used for this function. Career counseling services are seldom available to distance education students. On the basis of this review of research, several areas of focus for future research are identified: the impact of computer management systems on delivery of student support services; the importance of career counseling for distance education services; student support systems at dual-delivery institutions in the U. S.; and the cost effectiveness of technologies used to provide support to students. (46 references)

THEORY, POLICY, AND MANAGEMENT

Dirr, P. 1991. Research issues: State and national policies in distance education.

Key policy research issues include: 1) equal access to higher education for all learners; 2) assurance of high-quality educational experiences, 3) assessment of effectiveness, 4) determination of the value of constructing unique systems for the delivery of distance education, 5) training of distance education faculty and administrators, and 6) licensing and accreditation of distance education programs. This latter issue is especially important in light of recent trends for state and regional accreditors to exert greater control over distance education programs. For example, some programs have been required to obtain separate licensing in each state in which they have students. While oversight of distance education programs is necessary and desirable in order to assure quality programs and avenues of student redress, multiple registration and licensing requirements single out distance education programs for restriction. More reasonable would be to license programs at their point of origin rather than multiple points of reception.

Donaldson, J. 1991. Boundary articulation, domain determination, and organizational learning in distance education: Practice opportunities and research needs.

The changing nature of higher education and its environment calls for a more rigorous application of organizational theory to issues of management and administration in distance education, particularly in the areas of boundary articulation, domain determination, and organizational learning. Demographic changes and new technology have increased the permeability of the boundaries of institutions of higher education, that is, contact with and influence by those outside the institution has increased. However, access of certain populations is still limited. A few institutions have welcomed changes necessary to incorporate a distance education model, yet many others have maintained high levels of containment in relation to traditional educational policies and practices. Distance educators can help institutions focus on these factors of boundary articulation, which need to be addressed and changed to allow an educational institution to respond effectively to a changing environment. The issue of domain raises questions of the legitimacy of distance education programs within higher education institutions. The process of organizational learning can contribute both to the building of internal support and the development of effective leaders which is necessary to establish and maintain such legitimacy. To realize their potential as boundary spanners for the parent institutions and to convince others of their value in this role, distance education programs must learn how to learn from their environment. Lower-level, single-loop learning must be supplemented by higher-level, double-loop learning, which questions and challenges operating norms and standards of action with a view to changing them as environmental conditions change. Research necessary to facilitate such change must focus on questions of: factors which influence organizational learning; the relationship between an internal organizational focus and the

ability to engage in higher order learning; factors which affect institutional boundary articulation; and institutional assumptions which constrain the work of distance education units. (15 references)

Hezel, R. 1991. National and state policy in distance education: The issues and research.

Emphasis in distance education on the implementation of technology rather than on program delivery reflects a situation typical of the innovation and diffusion process. Distance education administrators have generally given three stages high priority: 1) the technology adoption, 2) the acquisition and development of programming, and 3) the evaluation of effects. Less attention is given to policy development. Although most current policy research consists of descriptions, rather than evaluation and analysis, of policies, a number of significant policy issues needs to be addressed by systematic research. Hezel Associates has researched statewide telecommunications and issued a report both describing the planning and implementation of telecommunications activities in all fifty states and evaluating telecommunications governance structures. An analysis of their findings resulted in the identification of critical policy issues for distance educators and the development of a "policy taxonomy." Other important research includes the 1989 Office of Technology Assessment report; research by the U.S. Department of Education on the importance of technology and telecommunications in resolving national education issues; and research by independent investigators into types of distance education funding sources, laws and policies affecting distance education, and the availability of reasonable-cost telecommunications services. (10 references)

Leiter, R. 1991. Synergistic model for statewide telecommunications success.

Successful statewide systems of distance education are based on the appropriate integration of four key components: planning, commitment, coordination, and funding. Task-force planning, on both the campus and state levels, should identify needs and goals and must address issues of turf, control, funding, equipment, etc. Commitment must come not only from a few innovative individuals, but from the top levels of management, as well. In this way programs' chances for continued financial support and, therefore, continued existence, are enhanced. During the coordination phase, all who are shareholders in the programs decide: what programs will be delivered; when they will be delivered; and who will deliver them and by what means. The major investments required by distance education systems necessitate that funding should be approached as a long-range issue. While support from business and industry, as well as from private foundations, are often available to initiate a program, its long-term survival will depend on support from state governments. The synergistic model presented here integrates the four key components to show how the stakeholders in a statewide distance education system can work together to effectively deliver educational programming to a wide range of audiences. (3 references)

Miller, G. 1991. Designing policy tools for the third generation of distance education.

Most state and national policy issues relating to distance education have resulted from the issues of the increasing complexity of the telecommunications environment and the development of distance education capabilities in traditional educational institutions. Policy research is needed to aid state regulators, regional accreditors, state and national legislators, and policy makers in making their decisions in a changing educational environment. Organizational effectiveness studies could identify criteria for planning networks and coordinating educational and non-educational applications of state-owned technology and

provide examples of effective organization which states could adapt to serve their own needs. Additional research is necessary to establish a common terminology which relates to the new technological environment in order that discussion and regulation of new technology not be limited by relation or comparison to the traditional classroom and so that distinctions among terms are clear. Cross referencing of terminology is necessary for improvement of communication and interpretation of existing and future policy. Policy research should not be directed at improving practice but at "improving the environment in which distance education operates." (5 references)

Moore, M. 1991. Theory of distance education.

A 1972/73 Two-Dimensional Theory of Distance Education provided a definition of distance education in terms of its constituent elements: learner autonomy (independence); dialogue (interaction between learner and instructor); and structure (extent to which elements of course design are responsive to the needs and objectives of individual learners). This grounded theory, based on inductive analysis of approximately 2000 distance education program descriptions, provided a theoretical framework which initially attempted to differentiate the field of distance education from traditional (contiguous) education. Analysis of one program dimension, "distance," was based on the extent to which they were "highly individualized" or showed "low individualization" and "highly dialogic" or "low dialogic." Highly individualized, high dialogue programs were categorized as being less distant, no matter what the actual physical distance between learner and teacher. In other words, distance is a continuous variable which relates to both contiguous and non-contiguous study. The degree of structure of a program also influences the distance dimension. Highly structured programs which provide few opportunities for dialogue are viewed as more distant, while low structure programs in which interaction between teacher and learner is facilitated are classified as less distant. The second dimension of independent learning and teaching, learner autonomy, is measured by the extent to which programs allow learners to control or influence their own learning. This concept, initially viewed as relating primarily to the education of adults, should now be viewed as relevant to all educational programs. Critics have contended that the model should provide for evaluation by distance educators; have suggested an alternative definition of structure; and have questioned the possibility of judging the degree of a program's autonomy from externally visible evidence. (17 references)

Pittman, V. 1991. Rivalry for respectability: Collegiate and proprietary correspondence programs, 1892-1963.

Collegiate practitioners of distance education have long been burdened by a perception among the public, as well as among other educators, of correspondence study as "second rate" or educationally unsound. "Slipshod, unethical, or downright corrupt proprietary schools," often the objects of scandals or lawsuits, both tarnished the image of early programs of distance education and competed for students with collegiate providers of correspondence education. Awareness that the negative image of proprietary schools could threaten the industry or lead to government regulation led to the establishment of the National Home Study Council (NHSC), a group pledged to self-regulation of private correspondence schools. However, because this regulation focused on advertising and sales practices, rather than on educational effectiveness, collegiate practitioners remained distrustful of proprietary institutions. Relations between the NHSC and the National University Extension Association were strained, especially after the government decided-largely on the basis of identification of correspondence study with unethical proprietary schoolsto exclude correspondence programs from G.I. Bill educational benefits. Although the two groups did cooperate in 1954 to produce a report on U.S. correspondence education, other attempts at cooperation or affiliation failed. As a result of the distrust and

criticism occasioned by the questionable practices of many proprietary correspondence schools, many of today's collegiate distance educators prefer to identify themselves as "representatives of postsecondary education institutions, not as champions of correspondence study." (17 references)

Porter, K. and W. Mason. 1991. Corporate distance learning educators--A horse of a different color?

For many years Aetna Life and Casualty Company has used a variety of educational media to train employees in their field offices. Currently, many training-related and "soft-skills" courses are taught via business television (BTV) which, for employees based in 235 field offices, is both less expensive and more convenient than traveling to the home office for training. Although this method of teaching has distinct advantages, classroom courses must be redesigned to fit the medium. Lower levels of individualized guidance from the teacher, for example, can be addressed through changes in course design and teaching methods which emphasize cooperative learning. Changes in course length and pre-course assessments; provision of on-site facilitators; training of instructors in medium-appropriate teaching techniques; use of graphics to enhance interest; development of appropriate written materials; and incorporation of participant feedback into course design are all ways in which BTV training programs can be designed to maximize educational effectiveness. To enhance learning in the corporate classroom, research should focus on questions relating to the effect of educational environment on preferred learning style; means for developing culturally appropriate instruction; the implications of combined technologies on instructional design, learner support and interactivity; and need for interdisciplinary training and perspectives for distance education providers.

Saba, F. 1991. Systems analysis of integrated distance education by discourse.

Learner autonomy is the goal of integrated systems of distance education. Dialogue and structure interact to determine the possible and actual level of autonomy within a particular system; as dialogue increases, structure decreases and as dialogue decreases, structure increases. Development of a model which accurately reflects the dynamic relationship between dialogue and structure depends on the ability to measure the level and rate of these two variables. A review of theoretical literature suggests that discourse analysis is an effective method of data collection for determining the level and rate of dialogue; because of the inverse relationship between these variables, measurement of dialogue reveals level of structure, as well. Use of this method should be informed by an awareness of its potential for semantic relativism with its accompanying deconstruction of the meaning of instructional transaction. Additional forms of data collection should be used to assure validity and reliability. On-going research in this area continues to focus on measurement of dialogue; recent studies examined and clarified categories of speech acts and addressed the question of how screen sharing influences the level of dialogue in a class. Additional research is planned to further clarify the concept of structure; to relate the role of learner to dialogue, structure, and autonomy; and to develop a more complete dynamic model of distance education. (21 references)

Woudstra, A. and S. Murgatroyd. 1991. Thoughts on evolving a distance education organization structure for a changing world.

To be competitive in today's world, a nation must have strong systems both of initial education and life-long learning. Providing an appropriate education depends on the ability and willingness of educational organizations to change in response to a changing social and economic environment. Organizations, including distance education organizations, can

choose to resist change or to accept or welcome it. Those who resist are risking institutional suicide. Those who recognize the need for change can evolve from bureaucratic distance education organizations to more flexible, adaptive learning organizations. The steps involved in this process include: 1) realization of the need for change; 2) promotion of a feeling of ownership of the new vision or strategy; 3) initiation of major reforms in structure, positions, relationships between customer and provider, etc.; 4) empowerment of personnel to be learning and achievement oriented; and 5) benchmarking and evaluation as starting points for improvement. Organizations which engage in this process of change will probably emerge as "Shamrock organizations": three-part organizations made up of a **core** of "highly energized" academics, professionals, and support staff who carry out the central functions of the organization; the **contractual fringe** of experts hired for specific projects; and a **flexible labor force** of part-time workers such as tutors, counselors, secretaries, etc. Such a structure will allow the flexibility and innovation necessary to respond appropriately to different customer groups or different subject matter. (35 references)

PART V

APPENDICES

PART V: APPENDICES

APPENDIX 1

Symposium Participants

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APPENDIX 2

The Program

Second American Symposium on Research in Distance Education

PROGRAM

Wednesday May 22, 1991

12:00-12:45 PM — Registration, Keller Conference Center - **LOBBY**
Sandwich Luncheon, Keller Conference Center - **ROOM 501**

12:55 PM — Conference Center Orientation

1:00 PM — Welcome and Opening of Symposium - **ROOM 501**
Michael Moore, Penn State University
Michael Strait, Annenberg/CPB Project

2:00 PM — First discussion session. **Learning and Characteristics of Learners.** Participants will meet in four groups to share information and ideas.- **ROOMS 501, 508, 509, 502**

The groups have been organized so that each will include specialists in this area. The questions to be discussed in each group are:

1. What has been the research and research results in this area in recent years, especially the past two years? If time permits, try to identify any outstanding projects you would especially recommend for your colleagues' attention.
2. What are the most important questions for further research? Try to identify a list of potential questions, with one top priority that might be the subject for collaborative research among participants.

In addition to those who specialize in this area, each participant is invited to address these questions in turn. A Penn State reporter will record. Two members are asked to accept responsibility for making a panel report and leading a plenary discussion later in the Symposium.

3:00 PM — Break

3:30-5:00 PM — Second discussion session. **Course Design and Communications**

6:00 PM — Dinner (Atherton Hilton)

7:00 PM — Plenary (i.e., full-group) presentation "Research Trends in Distance Education" - **ATHERTON HOTEL**
Dr. Dan Coldeway, Athabasca University
Peter Dirr (Chair)

8:00-9:00 PM — Plenary discussion - **ATHERTON HOTEL**

Thursday May 23,1991

8:30 AM	Third discussion session. **Instruction and Learner Support ROOMS 501, 508, 509, 301**
10:00 AM	Break
10:30 AM	Fourth discussion session **Theory, Policy and Management.**
NOON	Lunch (Nittany Lion Inn)
1:30 PM	Second Plenary session. "Appreciation and Description: Themes for Germinal Research" Liz Burge, OISE Michael Strait (Chair)
3:00 PM	Break
3:30 PM	First reporting session. Group leaders on **Learning and Characteristics of Learners** will present report on the research in this area and this will be discussed by plenary session.
4:30 PM	Break
5:00-6:00 PM	Second reporting session. Group leaders on **Course Design and Communications** report and discussion.
7:00 PM	Dinner (Atherton Hilton)

Friday May 24, 1991

8:30 AM	Third reporting session. Group leaders on **Instruction and Learner Support** report and discussion. - **ROOM 501**
9:30 AM	Fourth reporting session. Group leaders on **Theory, Policy and Management** report and discussion. - **ROOM 501**
10:30 AM	Break
11:00 AM	Final session. Selection of one question per subject and discussion of how to get it researched before the 1993 Symposium. Discussion of the relationship of these questions to international research and resources. - **ROOM 501**
12:30 PM	Adjourn

APPENDIX 3
Report of Plenary Session

After the small group discussions on each of the four topics of the symposium, group leaders presented reports on the research discussed by their respective groups and on proposed research questions to be considered at the final session. Following is a listing of the membership of each small discussion group, which remained constant throughout discussions of each of the four topics.

Group One

Wright, Stephen
Bajtelsmit, John
Moore, George
Pittman, Von
Gunawardena, Charlotte
Leiter, Robert
Arundel, Kevin
Phelps, Ruth
McIsaac, Marina
Gibson, Chére
Koble, Margaret (Reporter)

Group Two

Billings, Diane
Strait, Michael
Davis, Shirley
Woudstra, Andrew
Burge, Elizabeth
Mason, William
Goldstein, Jinny
Parks, Sara
Bousilman, Susan (Reporter)

Group Three

Atman, Kathryn
Dwyer, Francis
Saba, Farhad
Dillon, Connie
Dirr, Peter
Kerlin, Jim
Feasley, Charles
Coldeway, Dan
Miller, Gary
Lincoln, Darcie (Reporter)

Group Four

Ritchie, Helen
Egan, Winston
Beaudoin, Michael
Donaldson, Joe
Ehrman, Madeline
Jones, Douglas
Santoro, Gerald
Wells, Rosalie
Hezel, Richard
Paulsen, Morten (Reporter)

Learning and Characteristics of Learning

The first reporting session focused on research issues in the area of learning and characteristics of learners.

Group One. The complex issues of "drop out," the dynamic learner, and attribute/aptitude treatment interaction were the foci of Group One's discussion. This discussion led to examination of the problems researchers face in defining drop out and in understanding the development of the learner. Also to be considered are learners' developmental changes: locus of control, levels of confidence, competence and commitment, and students' perceptions of the purpose of learning. Other issues relating to interaction, structure, and the nature of the content with regard to learning were discussed. Addressing the complex questions related to learning and characteristics of learners necessitates operational definitions which will aid researchers. To guide future research there is need for several taxonomies:

- A taxonomy of learner characteristics/aptitudes that includes level of education, locus of control, learning styles, developmental patterns of learners (Perry's model), and range of skills;
- A taxonomy of learning that includes level and nature of content; and
- A taxonomy of characteristics of distance education to cover definitions, degree of learner support, and interaction.

Group Two. The report by Group Two on learning and characteristics of learners recommended that research should 1) focus on and reflect practice; 2) exist within a broader context, and 3) answer questions about choosing and designing media. Consideration should be given to examining learner characteristics and learning styles in distance education, especially culturally and gender appropriate learning styles. There is also a need to investigate relationships among and between variables, specifically, sociological variables and relationships between learning styles and instructional delivery systems.

Group Three. The discussions of Group Three focused on conation capacity (striving) of distance students. It was suggested that the Goal Orientation Index developed by Kay Atman can be used in research to measure skills of successful students in the goal accomplishment process. A paradigm for use in research on learner characteristics and success was then presented. A profile of a random sample of students can be established using the Atman model (the Conation Cycle, a problem solving/decision making model). In the next phase, instruction is delivered at a distance at two different institutions (constants). Four areas can then be examined: cognitive outcomes, behavior, attitude, and attention control. The final step involves a retest of the profile. Research using this paradigm may

answer questions such as: What does the profile say about population?; How does each outcome factor correlate with profile level?; and Does the profile change after instruction?

Group Four. Group Four posed questions about distant learners: Who are they? What do we know and what would we like to know about them? They provided examples of descriptive questions to be used to further research:

1. How do students respond to pre-packaged materials? When the materials arrive, are students overwhelmed? How do they use the material? Do they follow the study guide, thus preserving the sequencing envisioned by the designer? If not, how do they proceed?

2 What do we know and need to learn about students' evolving expertise with a technology which may help in training other students in the use of media? For example, what are the processes/stages involved in learning to use a medium such as Computer Mediated Communication (CMC)? How can we increase the "transparency" of any given medium?

3 What factors influence students' decisions in choosing a traditionally presented or technologically presented course when the opportunity for self-selection of courses is available?

4 What are the study patterns of distance learners, i.e., how do they schedule their study time in terms of days, weeks, months, as well as in terms of duration of study sessions?

This research agenda will add to the knowledge about distant learners and aid in understanding their needs.

Course Design and Communication

The second plenary session heard a report from discussion groups focusing on issues of course design and communication. A number of research questions were generated by each of the four groups.

The first group suggested that research should be conducted to examine course factors such as structure and dialogue in relation to learner characteristics such as confidence, competence, and commitment, and to content and learner goals and objectives. The group also concluded that there is a need for consideration of the social and political setting of instruction, as well as underlying pedagogical and cultural assumptions. In other words, who designs for whom? A final suggestion centered on institutional policy issues with regard to use of technology.

The second group proposed that research should focus on the role of faculty support systems in course design case studies. Further, the group would like to examine the implications of student goals and perceptions on course design. Should courses be

designed to reflect student objectives? For example, should courses be designed differently for the student whose goal is to learn as much as he/she can and for the student interested in becoming a self-directed learner? The third issue raised by this group centered on the issue of student perceptions of distance education. Are there misconceptions about distance education? If so, how can they be changed? Does an orientation to new media affect student perceptions? Finally, the group suggested that research could be facilitated by the use of case studies, literature reviews, and core theoretical constructs to identify helpful circumstances.

The third group examined issues of congruence between levels of learners' information processing ability (i.e., facts, concepts, principles, problem-solving) and complexity of course content. Research should attempt to provide course designers with a model for designing interactive feedback experiences effective in taking learners in new content areas from the factual through the problem-solving stage of information processing.

The relationship between various distance education models and instructional design was one area of research advocated by the fourth group. Additionally, they suggested examination of any specific instructional design skills needed for course design in distance education. Are there design elements that are essential to effective distance education? Are there common factors, that is, factors which must be considered by designers regardless of technology? A first step in answering these questions could involve surveying the field to discover what design methods are currently in use.

Other topics identified as appropriate for research included: appropriate levels of structure and learner control vs. levels of freedom and autonomy to be built into courses; the influence of group communication on the teaching process; and the impact of the "immediacy" of new technology on course design.

Instruction and Learner Support

The first session on the final day of the symposium centered on instruction and learner support, and was facilitated by Jinny Goldstein.

Research was a predominant issue for Group One, according to Charlotte Gunawardena's presentation of the group's discussion. This group believed that both descriptive and empirical research should be undertaken in the area of pre-enrollment advising. Further, research which assists in the identification of "high risk" students is especially important. This research might study media systems and personality types and focus on such aspects as the relationship between personality, type of student, and interaction with instructional media. From this study, additional research might develop

communication models for new technologies and media. Group One also called participants' attention to research on "interaction," referring to the Spring 1990 edition of *The Journal of Distance Education*, Chére Gibson's work, and the findings of Coldeway and Ross.

Using her paper "CMC to Support Telecourse Students–Can It Really Work?" as a base, Shirley Davis presented the findings of Group Two. This group identified issues, then developed some specific research questions within the context of Computer Mediated Communication (CMC). Faculty issues (its role, interaction with students, and familiarization with technologies) were a major part of these discussions. Additionally, learner issues, including learner experience, uses of technologies, and benefits to/costs to learners were identified as important. The four research questions that this group identified reflected the emphasis of their discussions. Both the role of the teacher and adaptation to technologies are topics that should be investigated. In addition, the identification and facilitation of learner-centered conditions for CMC settings could be pursued from the perspective of two models: extended and constructed. Finally, the group identified a strong need for conceptual research, particularly in regard to use of technologies.

Chuck Feasley reported Group Three's thoughts on the instruction and learning topic, identifying three issues. He referred to Dan Coldeway's remarks regarding the distinction between research and evaluation to help give the topic clarity. This group suggested that studying the processes of program evaluation is a necessary first step in the improvement of distance education. Similarly, there was agreement that the role of students as independent learners could be integrated into objectives during course design. Finally, the group introduced the question of the "uniqueness" of distance education and the conflicts which surface when distinctions are made between distance and traditional learning.

It was pointed out that Connie Dillon had not been able to participate in the group's deliberations, so she was asked for her insights into these questions and others. Her overview of the paper "Education for Each: Learner-Driven Distance Education" supported many of the group's premises.

Michael Beaudoin, on behalf of Group Four, presented a summary of that group's discussions. On the issue of instruction, the group considered "involvement" and interaction, from both teaching and learning perspectives. Research questions regarding the elements of effective instruction and teacher support systems essential to enhancing the learning environment emerged from these discussions. In addition, the group posed the questions of ways to integrate instruction and "processing" in distance settings, and of how to reach agreement on "principles of good practice" for distance education.

In the area of learner support, Group Four attempted to clarify "support" in terms of social contact, development of a social network and interaction, and availability of resources. Consistent with this focus, the question of the essential support components that influence an affective learning experience emerged once again. The group identified services that are critical for learners, including advising and counseling, library and learning resources, advocacy, and use of the media. Finally, the group suggested that recommendations for effective administrative support might also be studied.

Theory, Policy, and Management Issues

The final issues participants considered in their discussion on May 24, 1991 related to theory, policy, and management in distance education. In the plenary overview, facilitated by Dick Hezel, analysis of critical topics for research identified by all symposium participants through the nominal group activity of the prior day produced an interesting conclusion: policy issues emerged as a higher priority than theory issues, and management issues did not emerge at all.

Represented by Robert Leiter, Group One provided two distance education research considerations: the need for research in developing policy agendas and the role of consortia. Within the framework of policy agenda development, the questions of availability, access, and use of information were identified. These questions could be considered from the national, state, and institutional levels: nationally, in terms of integration of the President's goals for education and distance education; at the state level, in regard to the development and documentation of both intra- and interstate synergistic models; at the institutional level, in terms of perceptions, standards, and resources necessary for success. Analyses of successful consortia models would also provide significant information for the future.

Michael Strait reported that Group Two considered three issues–perceptions about instructional technology, integration of adult learning principles with technologically-mediated instruction, and strategies for facilitating increased use of multi media–and then provided specific research questions. The questions focused these broader considerations into more exact parameters.

In relation to the issue of reaction to technology, the identification of forces (and their origination in institutions) which "push and pull" distance education would provide necessary information. Strategies for decreasing or removing intra-institutional barriers and increasing cooperation within the institution should also be studied. The importance of the

placement of distance education units within larger organizational structures is another consideration which evolved from this group's discussions.

The interaction of andragogy and adult learning principles with technology produced questions about emerging leaders within the field of distance education. The establishment of a national distance education institution is worthy of consideration in this respect.

The issue of multimedia integration raised questions of designing differently for international audiences. Systematic approaches to perspective and descriptive research should be developed. Additionally, the identification of trends in and models for distance education will be critical for the future development of the field.

Group Three produced three conceptual frameworks for needed research, according to presenter Gary Miller. The first of these involved the development of a shared language for the definition of educational policy for distance education. Conceptual and definitional clarity is important as we move toward partnerships melding classroom instructors, state agencies, accrediting agencies, and the federal government. Secondly, analysis of effective models for statewide coordination of distance education efforts was suggested: What is/should be the nature of "effectiveness" for statewide models? Re-examination of the current models would assist in identifying goals and evaluating achievement, and would also provide information about infrastructure. Finally, analysis of the concepts which contribute to the paradigms of distance education would both illuminate experiential insights on which the field is based and aid in the identification of theoretical research needs.

Joe Donaldson identified the major issues addressed by Group Four. Policy research should focus on who is and who should be making policy; moreover, a review of existing policy and the impact of these policies can provide contextual information necessary for formulating new policies that advance distance education goals at a variety of levels, from individual to global. Other questions that need to be addressed include: How do we communicate policy? Should policy be reactive or proactive? What lobbying efforts work?

Management issues included encouraging faculty involvement in distance education and the relationship of distance education administrators to the parent organization. Additionally, the group perceived a need for models which illustrate successful integration of distance education into organizations, and suggested identifying and studying successful examples in order to build appropriate models. Issues of partnership and collaboration should also be investigated. The lessons of Autonomous Distance Teaching Institutes may provide useful information. Finally, the questions of financial support and funding need exploration if future growth is desired.

The question of specificity arose in this group's discussion of distance education theory. Do general learning theories apply to distance education, or do we have a set of research from which we can develop a specific distance education theory, separate from learning theories borrowed from other fields?

It was suggested by Robert Leiter that, because of distance education, this is the most exciting time to be in education since the 1960s. The need for research in developing policy agendas is critical, and the priorities for policy development seem to be surfacing as rapidly as are new distance technologies.

APPENDIX 4
The Poll

As reported earlier, during the Symposium all participants were invited to write their research ideas on sheets of newsprint strategically situated in the meeting rooms. There was almost complete congruence between the topics voted in the poll and those that emerged through the small group discussions. The following is the list of "top topics" in the order of their support, (i.e., the first named received the most votes, and the order then descends).

Poll Topics

A. Learners/Characteristics

13 Interaction of learner attributes and instructional methods (ATI).

4 Learner role shifts.

3 How to make possible for students, teachers, etc., to use what we know/will know about individual differences.

3 Goal accomplishment style.

2 Strategic behavior and goal selection.

1 Peer group learning.

1 Cognitive strategies.

B. Course Design/Communication

9 Strategies for introducing innovations in course design/delivery.

7 Control vs. freedom—provision of options and enhancing autonomy vs. need for structure and guidance.

6 Assessing student learning (i.e., development of appropriate approaches).

4 Address social issues of cultural diversity and critical theory.

5 Designing for self directedness.

3 New models/metaphors for distance education.

1 Teacher role shifts.

C. Instruction/Learner Support

9 Need for and effectiveness of interaction (faculty-student; student-student).
5 Interactive support network.
5 Importance of effective factors in learner, teacher, and design effectiveness.
4 Group dynamics.
3 Principles of good practice for distance educators.
1 Power sharing and keeping.
1 Effective instructional media, methods, and techniques in distance education.

D. Policies

8 Faculty/Administrator development for distance education.
6 Conceptual framework for analysis and research on the learning environment.
4 Statement on licensing/accreditation of distance education programs.
4 Monitoring the quality of distance education programs.
3 Interventions to promote student retention.
3 How are policies developed?
3 Organizational fit.
2 Guaranteeing access to educational opportunities through distance education.
1 Cost-benefit analyses.